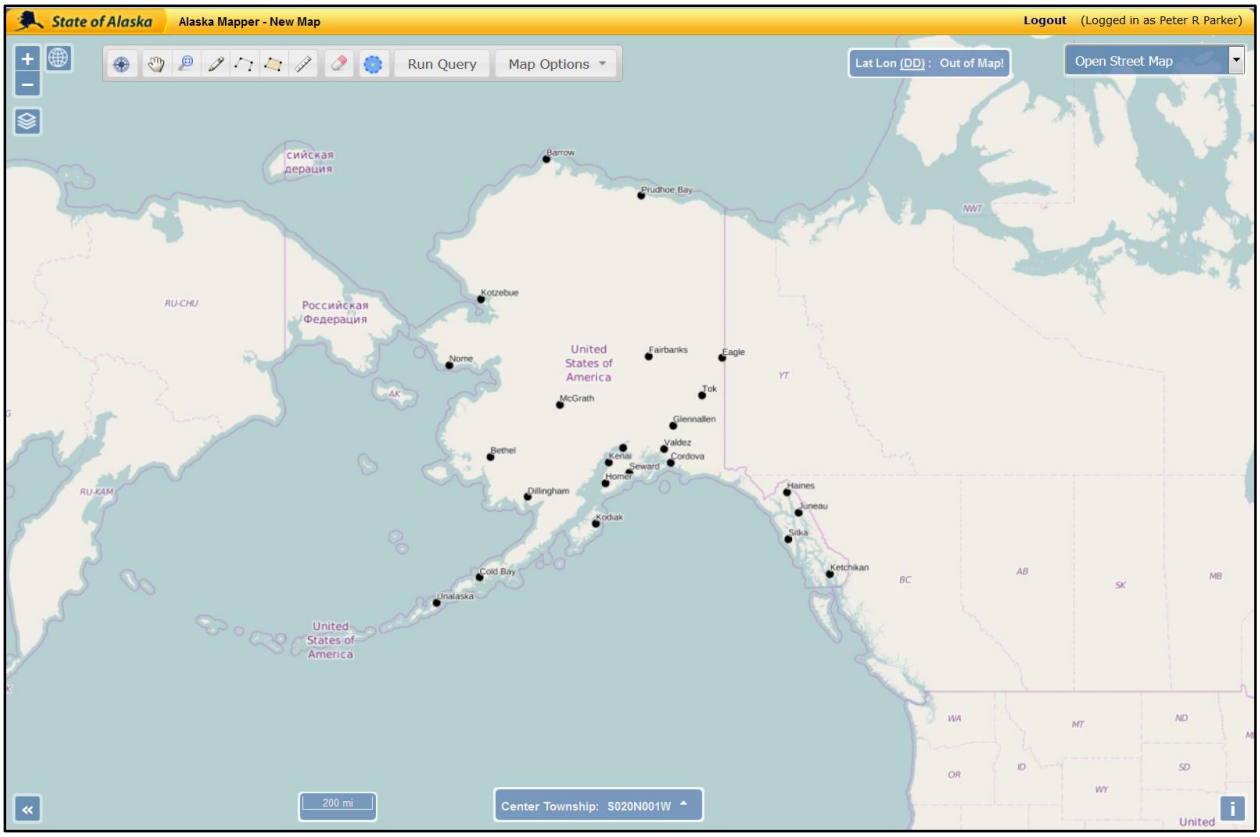
Alaska Mapper

Version 4.0.2

User Guide



http://dnr.alaska.gov/mapper

July 13, 2016

Contents

Overview

What's New in Version 4?

Alaska Mapper has been completely redesigned in an even lighter weight JavaScript-driven environment to improve the appearance and usability of the application. Most of the functions of the previous version of Alaska Mapper are available in version 4 with even more canvas to work with. What you see is what you get (WYSIWYG) printing returns to version 4 with the use of OpenLayers version 3 and HTML 5.

What is Alaska Mapper?

Alaska Mapper is a web and mobile-based geographic information system (GIS) that allows you to locate Alaska land-records information by navigating an interactive map of the state. The land-records data provided by the system comes from the Department of Natural Resources (DNR) Land Administration System (LAS), the authoritative data source for all state land records. Land records may be displayed over a wide range of base maps, including Bing maps, USGS topographic maps, satellite imagery, elevation models, Department of Transportation road centerlines, Department of Fish and Game anadromous streams, and NOAA nautical charts.

With Alaska Mapper, you can zoom to an area of interest, turn map layers on and off, make live queries to the Land Administration System, download selected data for use in other geospatial systems and even construct your own maps using available map layers.

Much of the information displayed in Alaska Mapper is also used to produce status plats, which are the state's official graphical land records. Although status plats have been accessible through the Land Records Web site (http://dnr.alaska.gov/landrecords) since 1999, these documents are not interactive. Using state-of-the-art GIS technology, Alaska Mapper makes this information readily and easily available to the public.

Alaska Mapper's primary purpose is to provide information on state land ownership and use. The system is versatile enough to help you conduct in-depth analyses of land issues with the proper training and experience. If you require assistance, please refer to the Land Records Support Web page.

System Requirements

Supported Browsers

Alaska Mapper is compatible with recent versions of Microsoft Internet Explorer, Mozilla Firefox and Google Chrome.

Recommendations for Best Performance

For best performance, we recommend that your system have the following:

- Screen resolution of at least 1024 x 768 pixels
- Ability to display at least 24-bit color video
- Adobe Acrobat Reader browser plugin

About Alaska Mapper's Geographic Data and Satellite Imagery

Alaska Mapper's spatial datasets use the North American Datum of 1983 (NAD 83). USGS base maps, NOAA nautical charts, elevation models, satellite imagery and aerial imagery are obtained from the Alaska Statewide Digital Mapping Program, a joint program between the University of Alaska, the Department of Military and Veterans Affairs and the Department of Natural Resources. See http://www.alaskamapped.org for more information.

Getting Started

Accessing Alaska Mapper

To access Alaska Mapper, direct your Web browser to http://dnr.alaska.gov/mapper. The home page will appear as indicated in Figure 1 – below. To begin using the application click on the Launch Alaska Mapper link.

Using the Guest Account

By default, Alaska Mapper will log you in as a guest, which gives you access to the full range of map layers and application functions, except for the ability to save maps. If you wish, you may use your existing myAlaska (https://my.alaska.gov) account or create a new one for the ability to save maps.

Registered User Accounts

If you are a State of Alaska employee using a State computer, you will automatically be logged in using your SOA account. Your name will be displayed after the Welcome text (see Figure 1 – below).

If you wish to use a different State of Alaska account, click on the Log In as a SOA employee link and follow the instructions. The user ID and password are the same as those for your e-mail account. If you are unable to log in, contact your local computer support personnel or the Department of Administration.

If you wish to use your My Alaska account, click on the Log In using My Alaska link. Follow the instructions on the My Alaska Login page. If this is the first time using your My Alaska account with Alaska Mapper, you will need to agree to the terms and conditions presented during the very first login.

Figure 1 – Home Page

Logging out

When finished with the application, you should log out by clicking the Logout link in home page or the upper-right corner of the other windows (Figure 2). Logging out closes the current session and helps eliminate the chance of someone tampering with your saved maps. Alaska Mapper will automatically log you out after two hours of inactivity and return you to the login screen. A notification ribbon will appear across the top of the warning that you are about to be logged out. You have the ability to cancel the logout at that time.

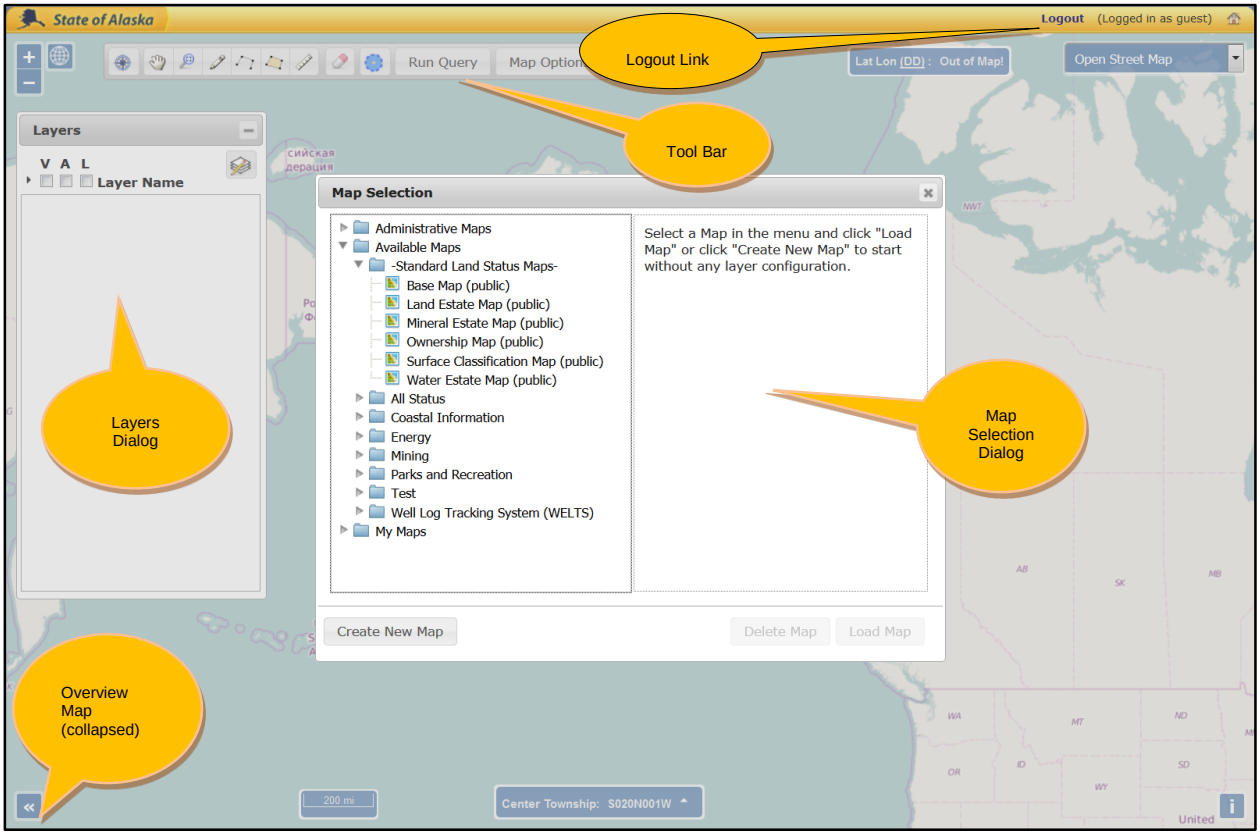


Figure 2 – Map Page

Getting Help

Help tips are a quick and useful source of information about many functions in Alaska Mapper. To display a help-tip, hover your mouse pointer over object you are interested in getting information about.

Training opportunities are available for Alaska Mapper. Please send your training requests via this contact form.

Quick Start Guide

The following steps provide a high-level outline of a typical usage scenario in Alaska Mapper. For more details, refer to the sections that are referenced in these steps.

Tip: For best performance, do not use the browser's **Back** button or any other navigation options provided by the browser. Use only the navigation options that you see in the application interface.

Open a map

1. Initially the Map Selection dialog is open when you first enter the application. From there, click the name of the map that you wish to view. You may need to expand the folders on the selection tree to find the map you need. To expand or collapse a folder, click the triangle to the left of it. Once a map is selected, click on the **Load Map** button.

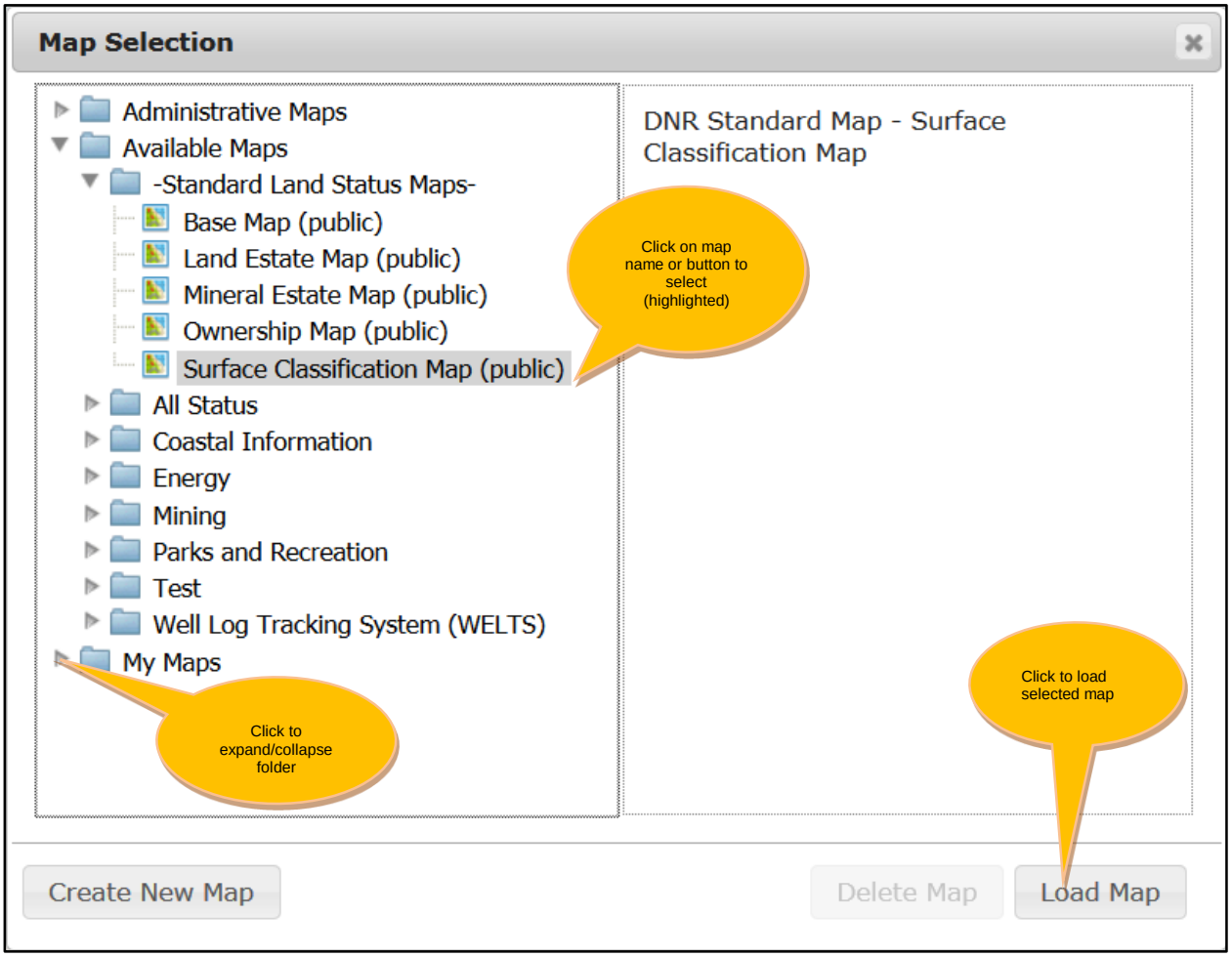


Figure 3 – Map Selection Dialog

The selected map displays.

2. If necessary, select a different base map. See "Base Map Options" for more information.

Query a map

3. Make sure the map contains the layers that you need and that they are visible or active. See the "Map Layers" section for more information.

4. Navigate to a location on the map using either of the following methods:
    - Use the pan and zoom tools to manually navigate to a location. See the "Pan Tool" and the "Zoom Tool" sections for more information.
    - To go directly to a specific location on the map, use the **Map Navigation** tool. See the "Map Navigation Tool" section for more information.
5. Select an area of interest to use in a query using either of the following methods:
    - Use the **Query by Feature** tools to manually draw an area of interest. See Query by Feature Tools section for more information.
    - If you have navigated to a location using the **Map Navigation** tool, click **Use** to select the area. See "Map Navigation Tool" for more information.

    Note: If you have multiple areas of interest designated on the map, they will all be used in the query.
6. The query will return any features in the active layers that have any interaction with the area(s) of interest.
7. Click **Run Query**. The system generates the report using the specified criteria. See "Running a Query" for more information.

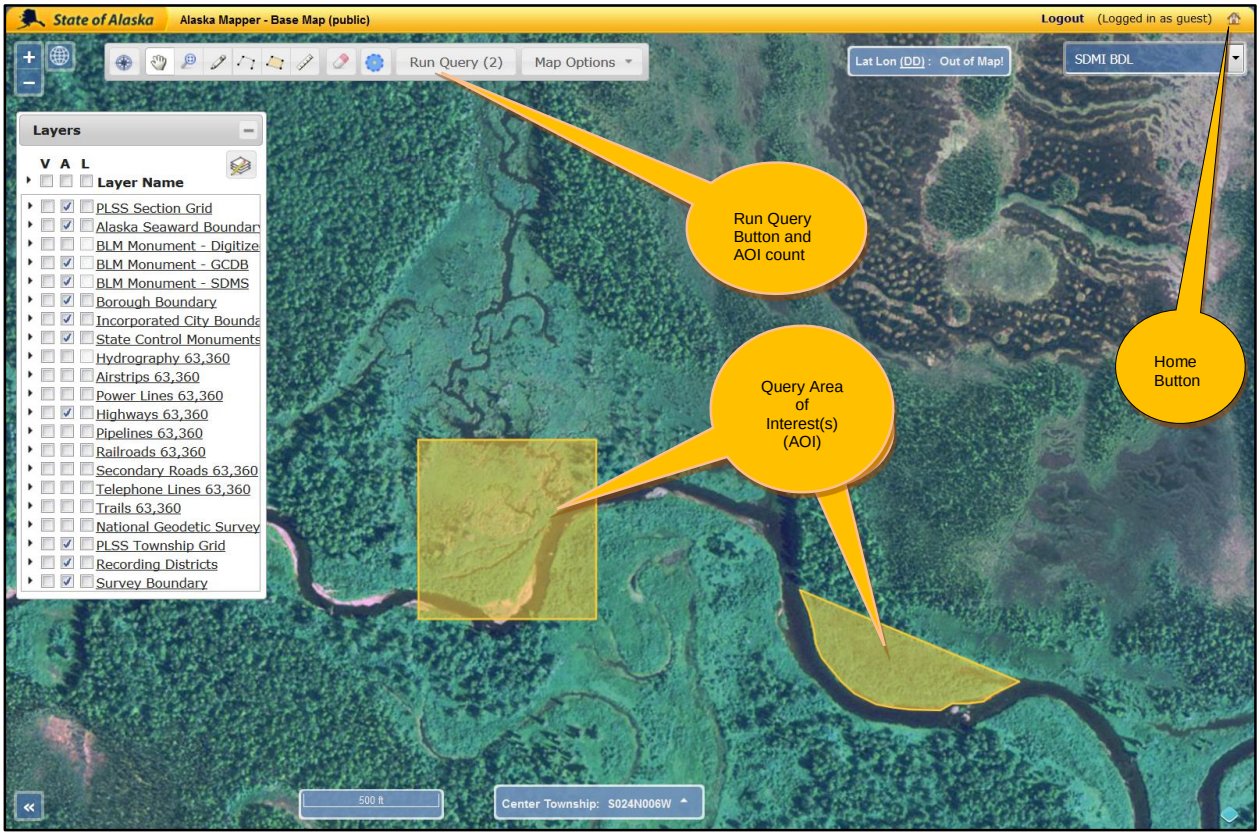


Figure 4 – Overview of How to Run a Query

8. From the Query Results window, organize the report by sorting the columns as you see fit. See "Sorting the Report" for more information.
9. If desired, print the report or export it to an Excel spreadsheet, PDF file or HTML. See "Exporting the Report" for more information.

Alaska Mapper Basics

Navigation Links

At the top of the Alaska Mapper pages, you will see navigation links, often called "breadcrumbs," that show a history of the pages you visited prior to the current page. You can quickly return to a previously visited page by clicking a link in the breadcrumb trail.

On the Alaska Mapper Map page (see Figure 4 – Overview of How to Run a Query), you will find the Home button in the upper right-hand corner that will bring you back to the application's home page.

Tip: For best performance, use these navigation links instead of your browser's **Back** button.

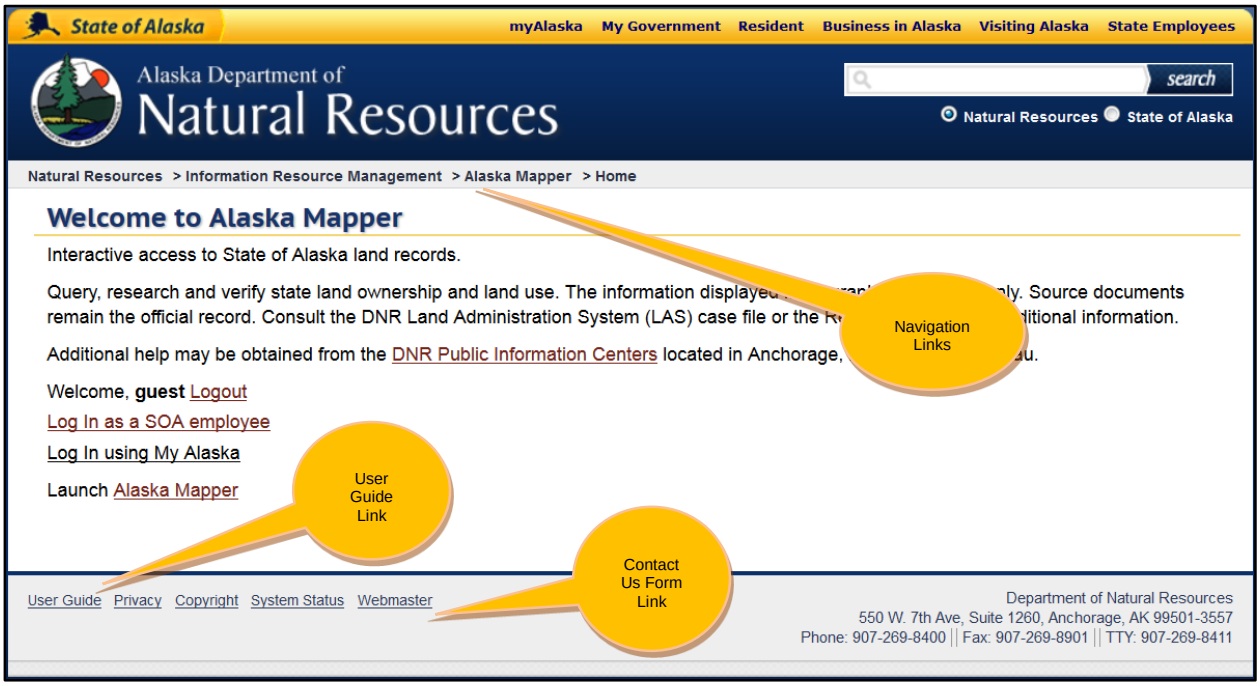


Figure 5 – Navigation Links

Overview of the Alaska Mapper Map Interface

The application interface is divided into the following main areas:

Area	Description
Toolbar	The **Toolbar** contains buttons to application functions and information. See "Overview of the Tools Tab" section for more information. The **Toolbar** is movable.
Zoom Tools	Zoom In, Zoom Out and Zoom to State Extents
Layers Dialog	The **Layers** tab lists all layers of the current map and allows you to control which are visible and active. See "Map Layers" section for more information.
Overview Map	The overview map indicates the area displayed in the map frame in relation to the entire state of Alaska. See "Overview Map" section for more information.

Cursor Location	This section displays the latitude and longitude coordinates of the current position of your mouse pointer.
Base Map Selector	Contains a list of base map options to choose from. See "Base Map Options" section for details.
Scale Bar	Displays a length relative to the map.
Center (of map) Township Information Menu	This section displays the township that is currently at the center of the map view and provides access to other DNR systems that contain information about that township. See "Viewing Township Information in Other Systems" section for details.

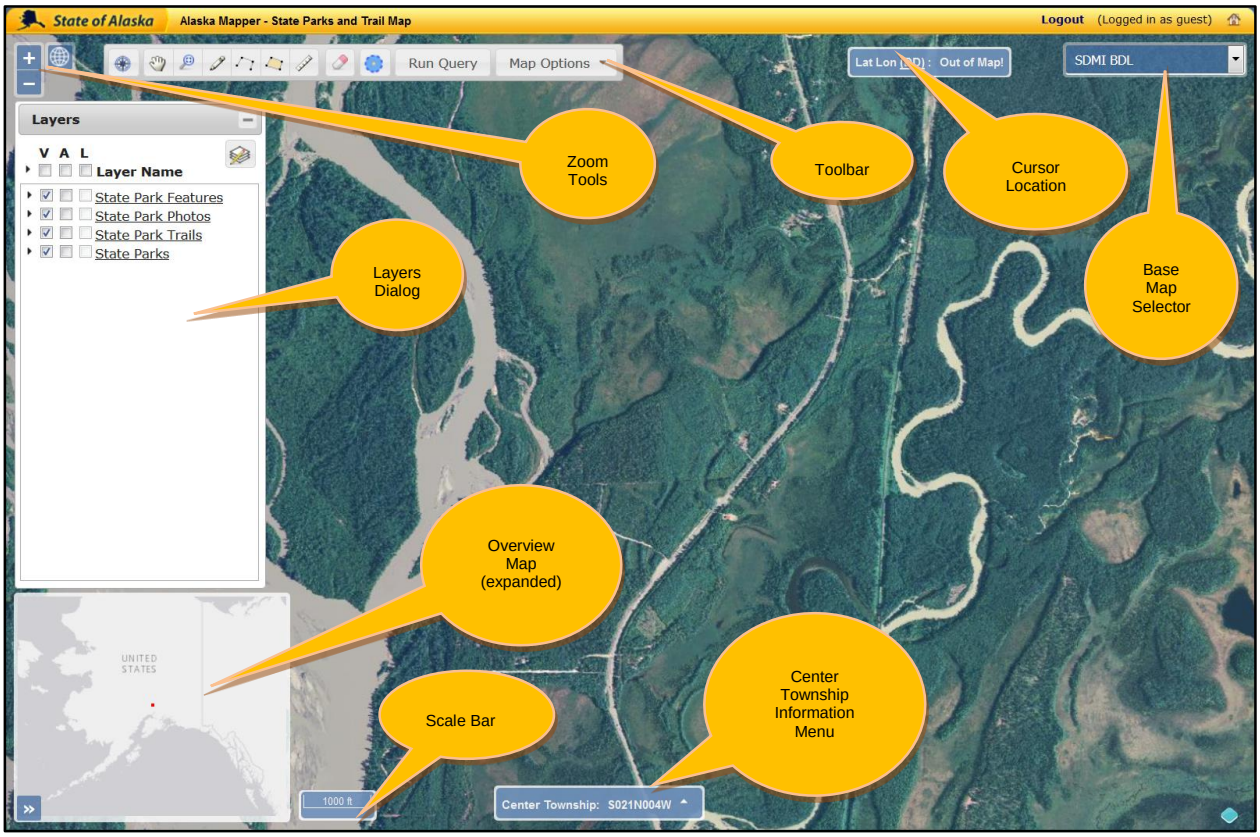


Figure 6 – Components of the Alaska Mapper Map Interface

Toolbar

The **Toolbar** contains a number of tools for navigating the map, selecting areas of interest, running queries and performing other functions. The following table summarizes the options found in the **Toolbar**:

Component	Description
Map Options Menu	
	**Map Selection** – Display the Map Selection dialog that allows you to select from a list of public or your own maps
	**Save Map** – Allows you to save a map if you are a registered user (not a guest).

	**Print** – Prints the current map view.
	**Import Features** – Imports GPX, KML and SHP type feature files. See "Importing Spatial Data" section for details.
Navigation Tools	
	The **Pan** tool allows you to navigate the map by clicking and dragging it. See "Pan Tool" section for more information.
	The **Zoom** tool allows you to zoom to a defined location on the map. Click, hold and drag the pointer to zoom into a specific part of the map. See "Zoom Tool" section for more information.
	The **Map Navigation** tool allows you to navigate directly to a map feature using various navigation options, including latitude/longitude specification, selection of Alaska place names, and others. See "Map Navigation Tool" section for more information.
Browser specific 	The **Previous View** is performed by your browser's Back button. When clicked, tool undoes a zoom in, zoom out, or panning of the map. This button is inactive whenever there is no previous view to which you can return. You can return to multiple previous views, one by one, by repeatedly clicking the button. Alaska Mapper remembers all previous views for the current map only.
Browser specific 	The **Next View** is performed by your browser's Forward button. When clicked, tool redoes the view alteration that was just undone. This button is inactive whenever there is no next view to which you can return.
Query By Feature	
	The **Draw Point** tool creates a point. See "Draw Point Tool" section for more information.
	The **Draw Line** tool creates one or more lines. See "Draw Line Tool" section for more information.
	The **Draw Polygon** tool creates a many-sided feature that encloses an area of the map. See "Draw Polygon Tool" section for more information.
	Modify Feature – A feature created with the above three tools can be modified by selecting one of the tools. For more details see the "Feature Modification" section for more information.
	The **Measure Distance or Area** tool measures the distance between two points that you draw on the map. See "Measure Distance or Area Tool" section for more information.

	The **Erase Feature** tool allows you to erase one or more features that you have drawn on the map. **Delete all** drawn features on the map, by **double-clicking** the tool. See "Erase Feature Tool" section for more information.
Run Query	**Run Query** – This button executes a drill-down style query against all the "Active" layers in the map. See "Running a Query" section for more information.
Feature Modify/Other	
	The **Buffer** tool creates a buffer around a feature on the map. See "Buffer Tool" section for more information.

Overview Map

The overview map frame, located in the lower-left corner of the window, contains a small map image that indicates the area displayed in the map frame in relation to the entire state of Alaska. The current map bounds are indicated on the overview map with either a red rectangle or a red dot, depending on the map scale. This is particularly helpful when viewing the map at large scales.

If the overview map is not visible (by default), click the blue arrow button « to display it.

To dismiss the overview map, click on the blue arrow button » in the lower left.

Maps

Opening a Map

When you log in to Alaska Mapper, the Map Selection Dialog will initially be displayed with the Available Maps and Standard Maps folders expanded. This dialog contains a list of maps to which you have access. This list is organized according to DNR functional areas. To view the maps available in a particular folder (for example, **Parks and Recreation**), click the triangle to the left of the folder. Clicking the triangle a second time will collapse the folder.

To open a map, select/highlight the map you are interested in and then click the **Load Map** button. You can close the dialog by clicking on the (Close) button in the upper right-hand side.

You can create a new, empty map by clicking on the **Create New Map** button.

User-created maps can be found under the "My Maps" folder. For more information, see "User-Defined Maps" section.

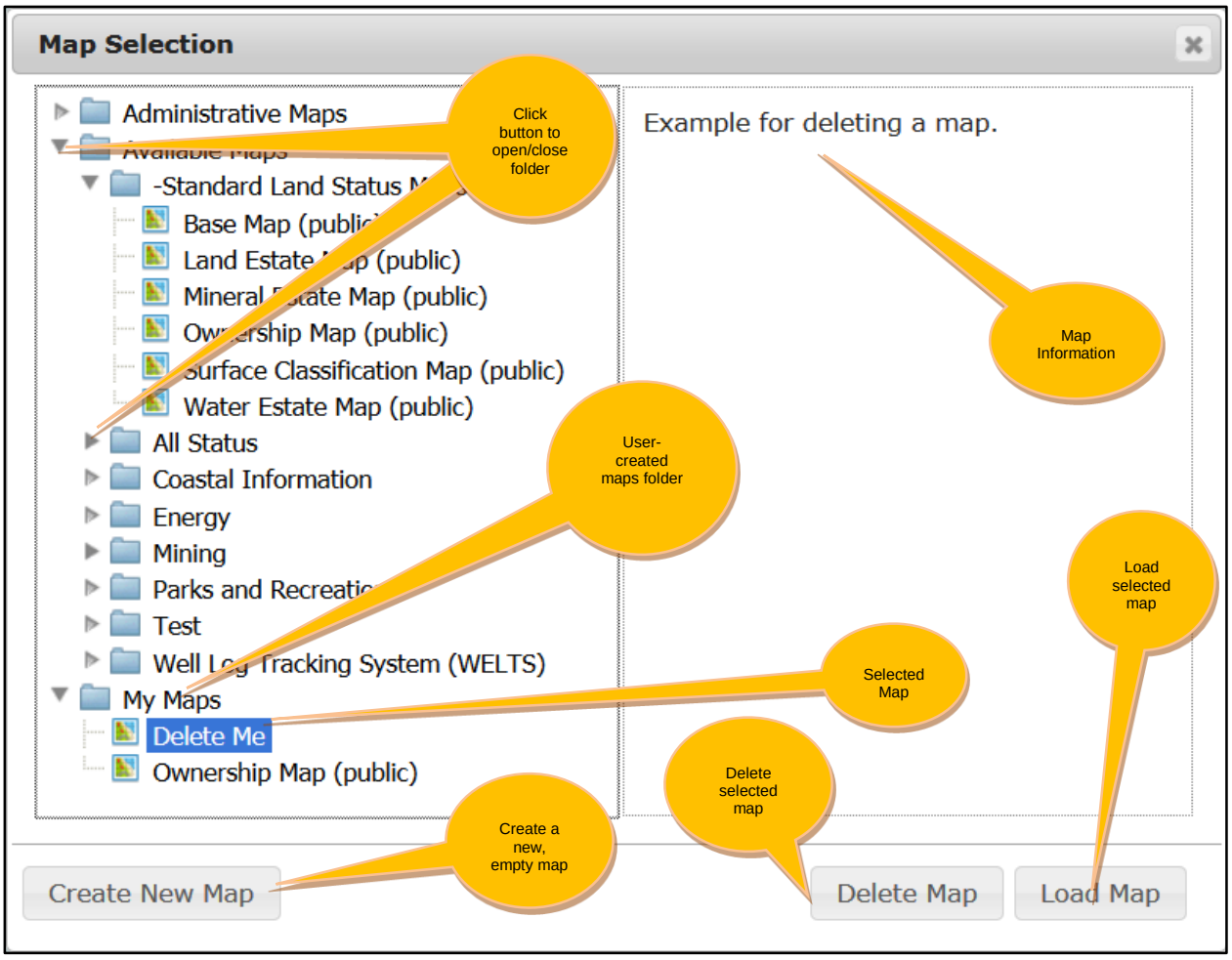


Figure 7 – Map Selection dialog

You can access the Map Selection dialog at anytime by clicking on the Map Options selector in the Toolbar and then selecting the Map Selection option.

Standard Maps

Seven standard maps are available to all Alaska Mapper users. These maps have the same content (layers) as the state status plats, the official graphical land records that describe the location of state land, the classification of the land and assignments of state interest in the land. These maps are found in the **Standard Maps** folder on the Available Maps page.

Following are descriptions of the standard maps:

Map	Description
Base Map	Contains the basic layers that are common to the other public maps, including hydrography, township and section grids, state outlines, roads, pipelines, etc. This is a good map to start with when designing your own maps.
All Status Map	Provides all of the layers found in the other six standard maps.
Water Estate Map	Displays the statewide locations for water rights, water authorizations, reservations and water management areas for surface and subsurface water sources.
Mineral Estate Map	A subsurface-use map that displays current oil and gas, mining and other subsurface resource uses on state uplands and tidelands. This map describes state lands as open or closed to mineral entry.
Surface Classification Map	Displays how state land may be used as a result of an area plan or site-specific classification.
Land Estate Map	A surface-use map that displays DNR authorizations or disposal of state uplands and tidelands to third party interests, such as individuals, businesses, municipalities, boroughs or other state agencies.
Ownership Map	Displays current state land ownership and the availability of those lands for use under specific rules and regulations of the State of Alaska.

User-Defined Maps

Note: You can save user-defined maps only if you are logged in as a registered user.

Alaska Mapper allows you to save your own customized maps. When you save a map, the system saves information such as the map name, the layers included on the map and the current zoom level and location. Alaska Mapper does not save the actual land-records data. Every time you open the map, it will be drawn using the latest land-records data available.

Creating a new User-Defined Map

You can create a new map either by starting from scratch with no selected layers or by modifying the layers of an existing map. To create a new user-defined map:

1. From the Map Selection dialog, click the **Create New Map** button. The new map with the OpenStreetMap base-map option displayed.

2. Add layers to the map as you see fit. See "Adding and Removing Map Layers" section for more information.
3. Using the options found on the **Toolbar** and **Layers Dialog**, navigate and modify the map as you see fit.
4. Save the map by clicking on the **Map Options** menu in the **Toolbar** and click on the **Save Map** option. The **Save Map** dialog displays.
5. Complete the fields as described in Table 1.

Table 1 – Save Map Dialog Fields

Field	Description
Map Name	The name that will appear in the in the title bar and the "My Maps" folder. **Note:** The name of the map must be unique for each user or an error will occur when saving.
Map Description	A short description of this map. This information is displayed in the Map Selection dialog when map is selected.
Map Comments	Detailed information about this map which is only visible in the Save Map dialog.

6. With the information entered, click on the **Save As** button. If the save is successful, the **Save Map** dialog will disappear.
7. New maps will be visible in the **Map Selection** dialog under the "My Maps" folder after they are saved.

To create a user-defined map from a preexisting map:

1. Open an existing map as explained in the "Opening a Map" section above.
2. Make modifications to the map as you see fit.
3. Save the map by clicking on the **Map Options** menu in the **Toolbar** and click on the **Save Map** option. The **Save Map** dialog displays.
4. With the information entered, click on the Save As button. If the save is successful, the Save Map dialog will disappear. **Note:** It is highly recommended to change the name of the map from it's current name to avoid confusion when opening it in the future.

Save incremental changes to a map:

1. Save the map by clicking on the **Map Options** menu in the **Toolbar** and click on the **Save Map** option. The **Save Map** dialog displays.
2. Click on **Save** button. If save is successful, the **Save Map** dialog disappears.

Deleting User-Defined Maps

1. To delete a user-defined map, on the **Map Options** menu in the **Toolbar** and click on the **Save Map** option. The **Save Map** dialog displays.
2. In the map tree, click on and highlight the map you wish to delete.
3. Click on the **Delete Map** button.
4. Either confirm the delete by clicking on the **OK** button in the confirmation dialog or click the **Cancel** button if you do not wish to delete. **Note:** Deletions are permanent however if the map you deleted is currently open, you can resave it by clicking on the **Save** or **Save As** button in the Map Selection dialog.

Note: The delete option is not available on maps the user does not own.

Map Layers

A map layer is a dataset that contains information about related map features. For example, one layer may contain all major lakes in the state, while another contains municipal boundaries. Each map has a number of layers available.

Viewing Current Map Layers

The **Layers** dialog lists the layers in the current map. From this tab, you can make layers visible or invisible, active or inactive as well as labeled or unlabeled.

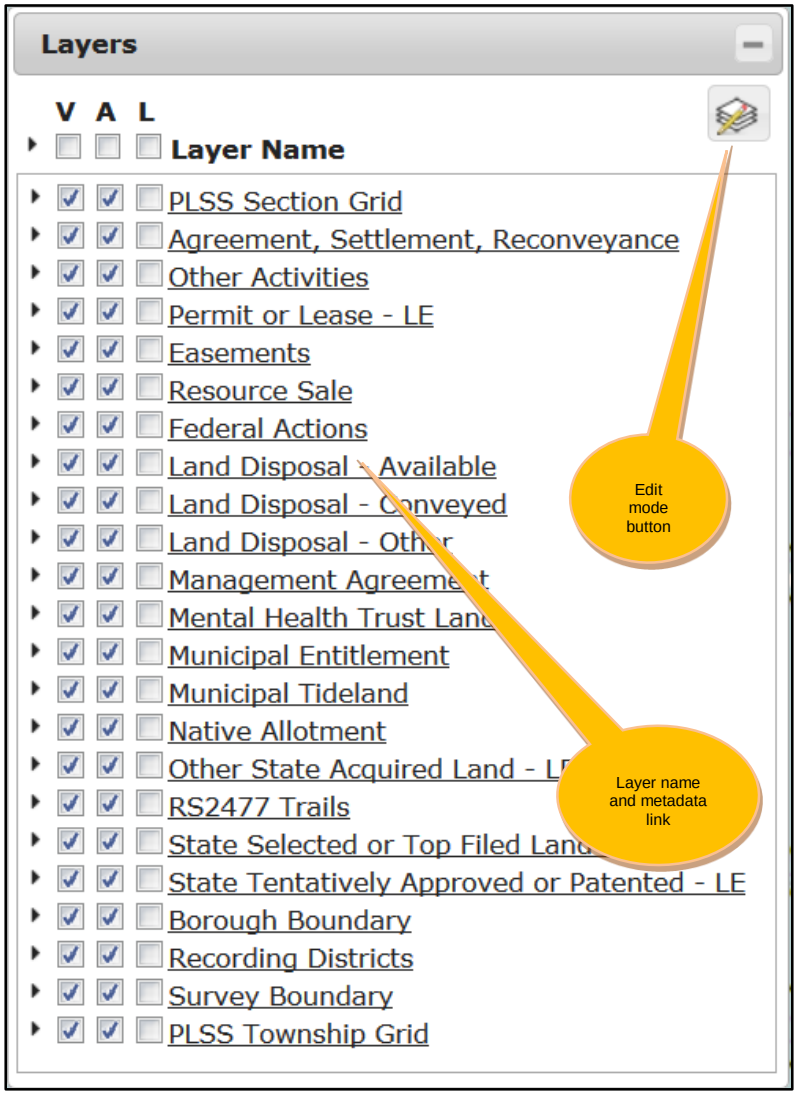


Figure 8 – Layers dialog

For each layer listed on the **Layers** dialog, you will see the following options:

Option	Description
V (Visible)	Select the **V** checkbox to make the layer visible on the map. Deselect this checkbox to hide the layer. **Note:** Some layer's data are visible only within a certain zoom range.
A (Active)	Select the **A** checkbox to include the layer in queries. Deselect this checkbox to exclude the layer from queries.
L (Labeled)	Select the **L** checkbox to turn on labels for a visible layer. Deselect this checkbox to hide layer labels.

It is possible to manage the layers in the current map by clicking on the **Manage Layers** button in the upper right-hand corner of the Layers dialog. This will allow you to add and remove map layers, as explained in the next section.

Adding and Removing Map Layers

To add or remove map layers, click the **Manage Layers** button on the **Layers** dialog. This will expand the **Layer** dialog to include the Layer Catalog.

The **Manage Layers** dialog will now be divided into two panels. The left panel (Current Layers) displays the layers that are currently in the map, and the right panel (Layer Catalog) displays all available layers. To add a layer to the map, click on the layer name in the Layer Catalog. You may have to expand the Available Layers list by clicking the triangle next to the folder names. When clicked on, the layer will be added to the top of the list of layers.

To remove a layer from the map, click the red X button  to the right of the layer name.

Note: When layers are added and removed from a map the map is instantly updated to reflect the change. However, you must save the map in order for your changes to be permanently saved.

Ordering Layers

The order of the layers in the map determines the order in which they are drawn. The layer at the top of the list has the highest drawing priority, meaning that it is drawn last. The layer at the bottom of the list has the lowest priority and is drawn first. You must order the layers so that part of one layer is not obscured by another layer that is drawn on top of it.

To order map layers:

1. Click a layer, and while holding down the mouse button, drag it up or down in the list.
2. Release the mouse button to drop the layer into its new location.
3. Repeat steps 1 and 2 to move other layers.

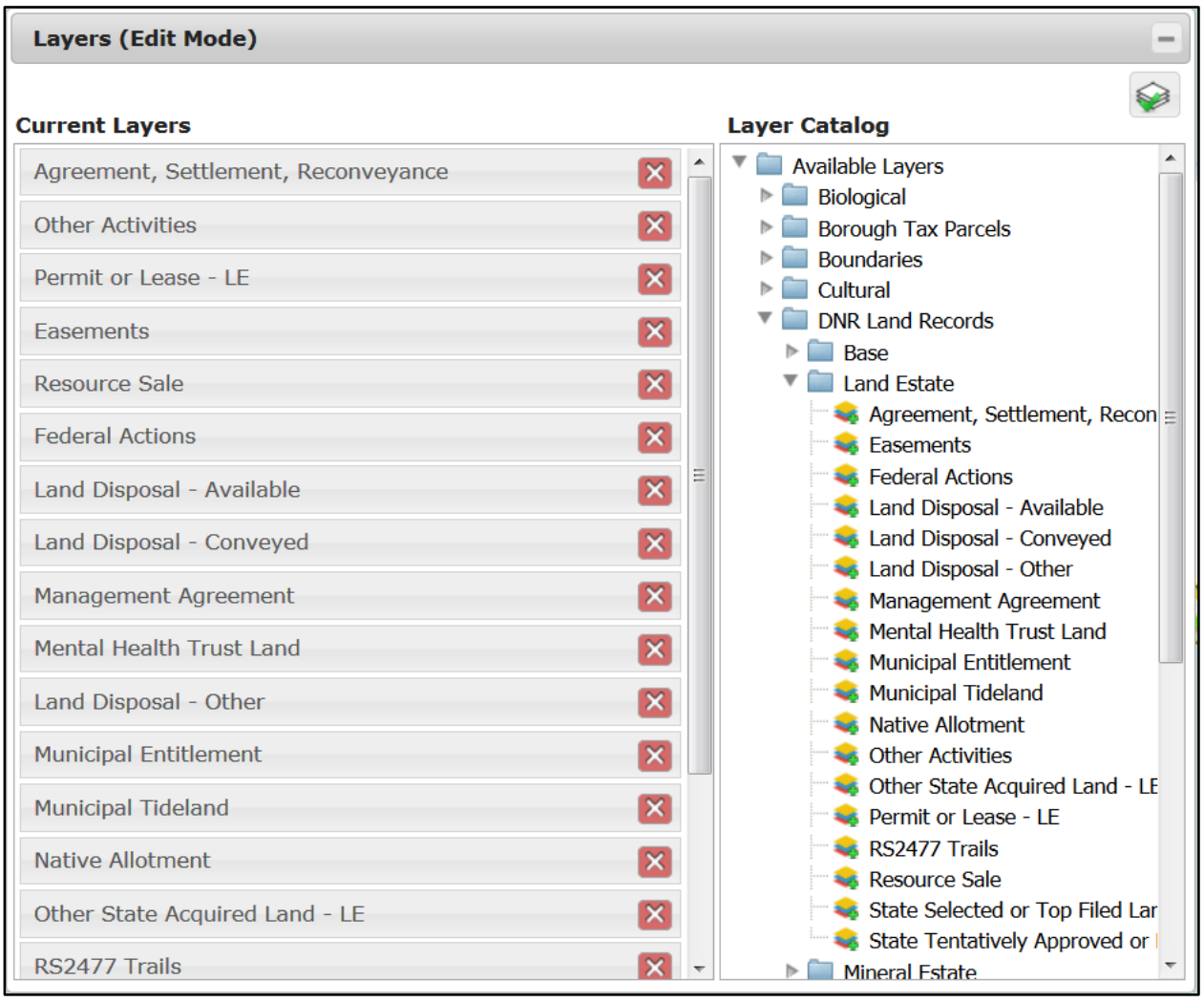


Figure 9 – Layer dialog (edit mode)

Viewing Layer Metadata and Extract Layer Data

Information about the data contained within the layers is called layer metadata or dataset metadata. You can view this information by clicking the layer name in the Layer dialog. A new window or tab will appear containing the layer metadata (see Figure 10).

You can extract all the data in the layer by clicking the link identified in Figure 10 and then entering your e-mail address. An e-mail will be delivered to your inbox when the extraction is complete. Depending on the size of the layer dataset, this process may take a number of hours to complete. Please do not retry the extract until you receive an e-mail response.

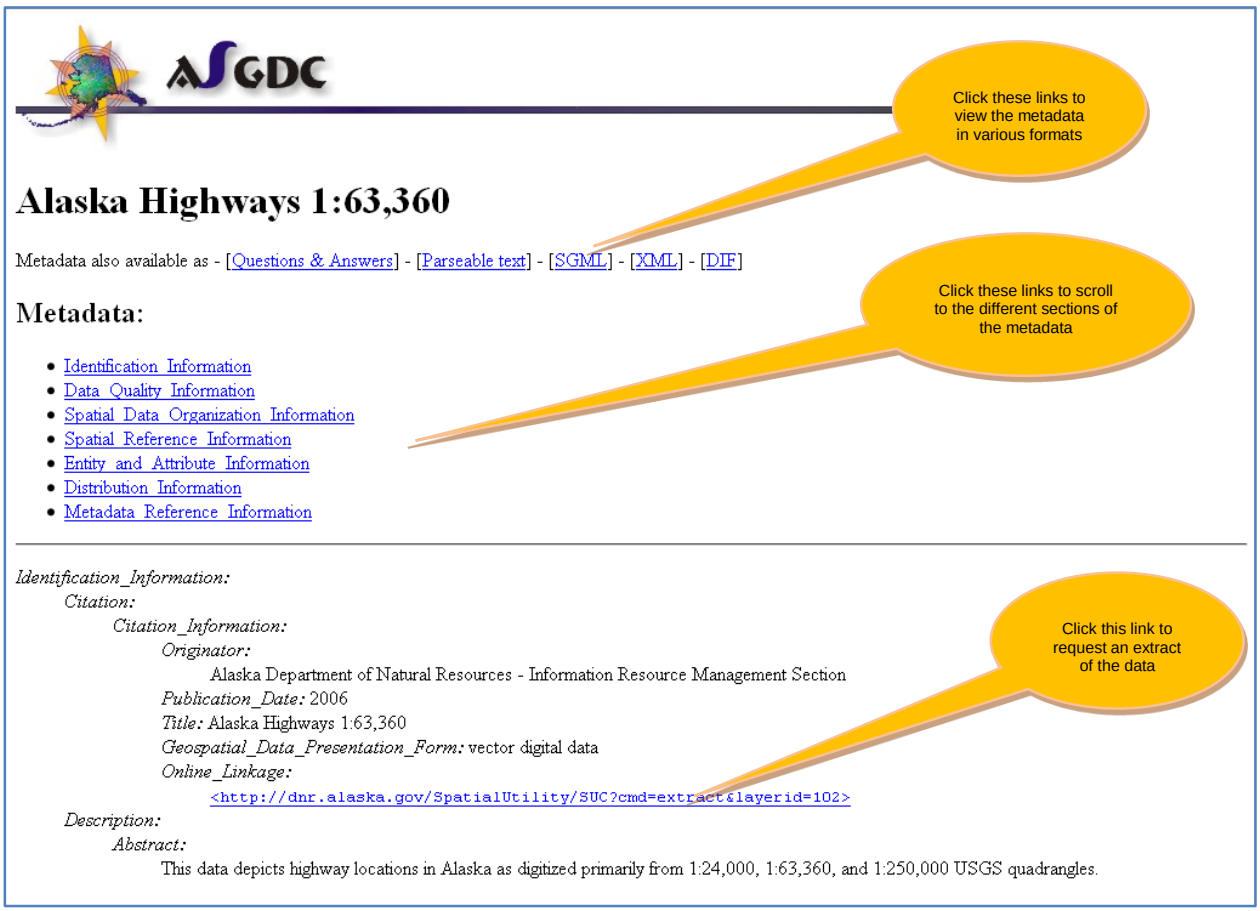


Figure 10 - Layer Metadata

Base Map Options

The **Base Map** selector allows you to select a background map.

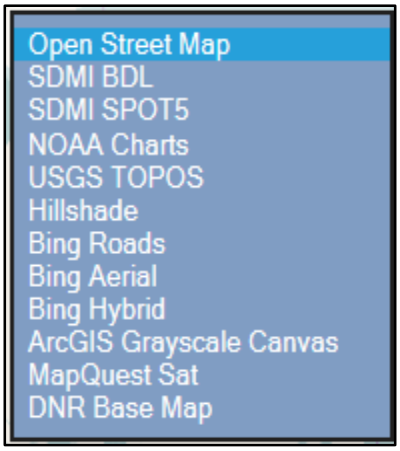


Figure 11 – Base Map Selector

Alaska Mapper provides the following Base Map options:

- Open Street Map
- Bing Roads, Aerial and Hybrid
- ESRI ArcGIS Grayscale
- MapQuest Satellite
- DNR Base Map

Following are detailed explanations of some of the available base maps.

SDMI BDL

Satellite and aerial imagery are obtained from the Alaska Statewide Digital Mapping Initiative (SDMI) (http://www.alaskamapped.org) through the University of Alaska. The imagery has been orthorectified, a process that removes distortions so that the images are geometrically correct and able to be used as planimetric maps. The detail of the imagery is set by the viewing scale of your map. As you zoom into an area, higher resolution images will appear if they are available for that portion of the state. The SDMI's goal is to provide new statewide data layers for imagery and elevation models that are more detailed than imagery presently available.

NOAA Nautical Charts

The NOAA base map option is composed of scanned images of the National Oceanic and Atmospheric Administration's (NOAA) Raster Navigational Chart for Alaskan waters. This chart is a graphic portrayal of the marine environment showing the nature and form of the coast and the general configuration of the sea bottom.

Note: This chart is not intended for navigational use.

USGS Topographic Map

The USGS Topos base map option uses digital raster graphics (DRG), which are scanned images of United States Geological Survey (USGS) standard-series topographic maps. These images were originally georeferenced to the Universal Transverse Mercator (UTM) projection. Since then, they have been converted into a seamless layer and served under various

projections (for example, Alaska Albers NAD 83). This map ranges in scale from 1:250,000 to 1:24,000.

Viewing Elevation Models as Hillshade Imagery

The Hillshade base map option uses shading to indicate features such as mountains, valleys, plateaus and canyons. Areas that are flat or have few features are smooth on the map, whereas areas with steep slopes and mountains appear rougher. This map is derived from the digital elevation models (DEMs) in the USGS's National Elevation Database. This map is suitable for use at scales greater than 1:63,000.

Map Tools

This section provides detailed explanations of many of the tools found on the **Tools** tab.

Hints and Tips

Following are some hints and tips on using the map tools:

- Only one tool can be used at a time.
- Once a tool is selected it will highlight in orange.
  - This is how the **Pan** tool looks when it is not selected:  .
  - This is how the **Pan** tool looks when it is selected:  .

Navigation Tools

Pan Tool

The **Pan** tool  allows you to move the map view by clicking and dragging with the pointer. This tool also allows you to use the mouse scroll button to zoom in and out. The faster you scroll, the faster the map will zoom in or out. You can use the browser previous and next button tools to move back and forth through previous zoom levels.

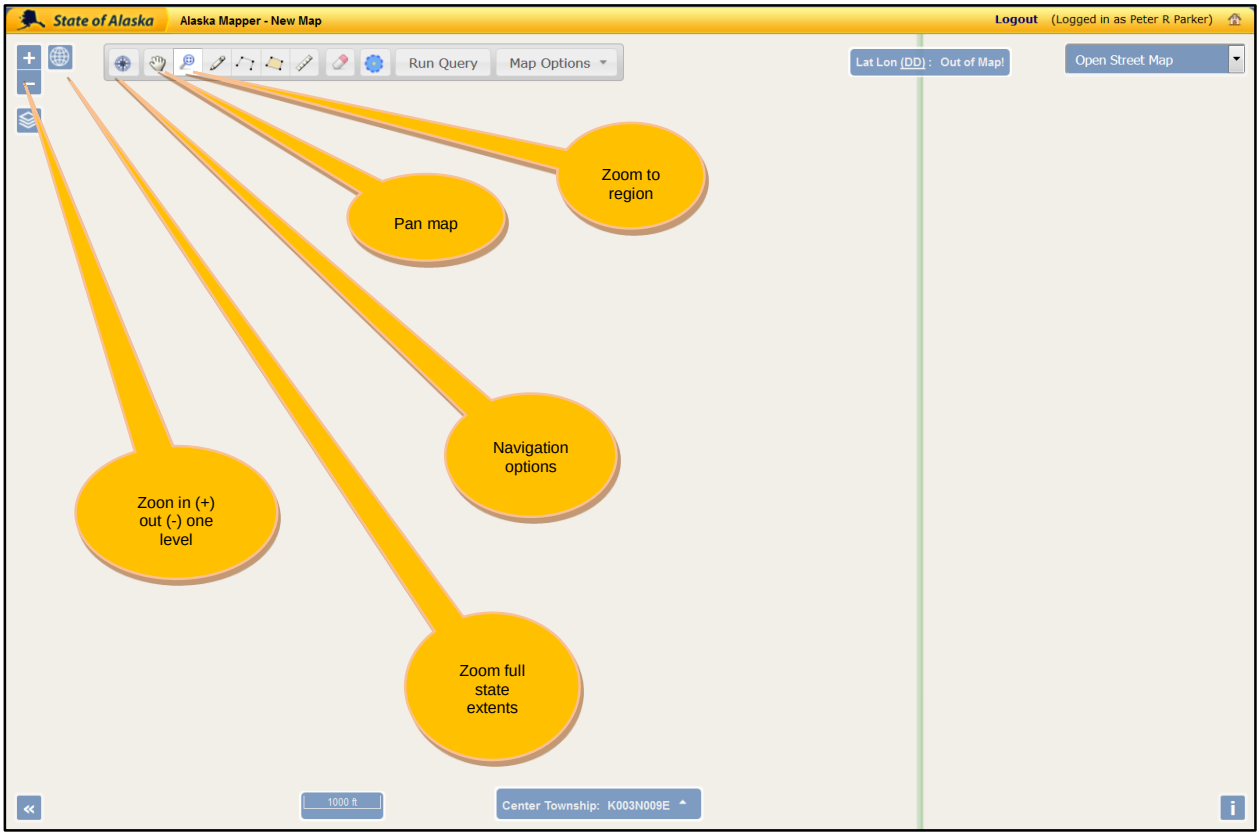


Figure 12 – Navigation tools

Zoom Tools

When the **Zoom to Region** tool is selected, you can double-click the map to zoom in by an approximate factor of two. The map will also re-center on the point on which you click.

You can also zoom in by drawing a rectangle. To do so, click the map, and while holding down the mouse button, drag the pointer. A rectangle will appear. When the rectangle is the desired size, release the mouse button. The map will zoom into the area enclosed in the rectangle. The smaller the rectangle you draw, the more the map will zoom in.

Zoom In / **Out** tools can be used to increase or decrease the zoom by one level when clicked.

Zoom to State Extent can return the map to a zoom level the includes the entire state of Alaska when clicked.

Navigation Options

The **Navigation Options** tool is a quick way to navigate to an area of interest on the map and use that area in a query. The tool offers a variety of options that allow you to navigate directly to features such as Alaska place names, boroughs, municipalities, and latitude and longitude coordinates.

Navigate to AOI

To navigate to an area of interest and use it in a query:

1. Click the **Navigation Options** button. The Navigation dialog appears.
2. Select a navigation option from the list box. See Table 2 for more information about these options.
3. Enter the required parameters for the selected navigation option. Each option requires different information. For example, if we have selected the "ADF&G Game Management Units" option, it requires us to select a value from the *Unit* dropdown menu.
4. Once the option(s) are selected, click **View** to preview the area of interest on the map (light yellow in color). Please note that queries cannot be run during preview.
5. To be able to run queries against the selected area of interest, click **Use**. This will create a point, line or a polygon using the previewed area (gold in color).
6. You can now use the area of interest in a query. See "Running a Query" for more information.

Table 2 – Navigation Options

Navigation Option	Description
Latitude and Longitude Decimal (WGS84)	Enter a latitude and longitude and click the **Use** button to navigate directly to those coordinates. See the Appendix for some tips on using this navigation option. **Note: Latitude** and **Longitude** accept up to five decimal places. Additionally, **Longitude** accepts negative numbers.
Latitude and Longitude DMS (WGS84)	Enter a latitude and longitude in Degrees Minutes Seconds format, and click the **Use** button to navigate directly to those coordinates. See the Appendix for some tips on using this navigation option.
ADF&G Game Management Units	Select a game management unit from the list box and click the **Use** button to navigate to the unit.
ANCSA Corporation Boundaries	Select an ANCSA Boundary from the list box and click the **Use** button to navigate to the boundary.
Alaska Place Name	Enter a place name (e.g., "Juneau", "Kenai River" or "Knik Glacier"). As you type, a list of matching database entries will appear below the text box. When you see the location you are seeking, select it by clicking it, and then click the **Use** button to navigate to the location.
Borough/Municipality	Select a borough or municipality from the list box and click **Use** to navigate to it.
Coastal District	Select a coastal district from the list box and click **Use** to navigate to the coastal district.
DNR Case (File Type and Number)	Select a file type and enter part or all of a file number, then click the **Use** button to navigate directly to the case on the map.
DNR Recording District	Select a recording district from the list box and click **Use** to navigate to the recording district.
DOT Centerline Milepost	Select a route and a milepost from the list boxes, then click **Use** to navigate to the specified location.
PLSS Short Form	Enter a meridian, township, township direction, range, range direction, section number (optional) and aliquot part (optional), then click the **Use** button to navigate directly to a township.
National Geodetic Survey (NGS) monument	Enter the name of the NGS monument. As you type, a list of matching database entries will appear below the text box. When you see the monument you are seeking, select it by clicking it, and then click the **Use** button to navigate to the location.
Rural Education Attendance Areas (REAA)	Select an REAA name from the list box and click **Use** to navigate to the REAA.

USGS 1:250,000 Topo Map Extent	Select a quadrangle name from the list box and click **Use** to navigate to the specified quadrangle.
USGS 1:63,360 Topo Map Extent	Select a quadrangle name from the list box and click **Use** to navigate to the specified quadrangle.
Address Geocoding (Geocoder and Google)	Enter a street address, including city and state, and click **Use** to navigate to the location.
North Slope Water Sources	Enter a Water Source ID, and click **Use** to navigate to the location.

Feature Tools

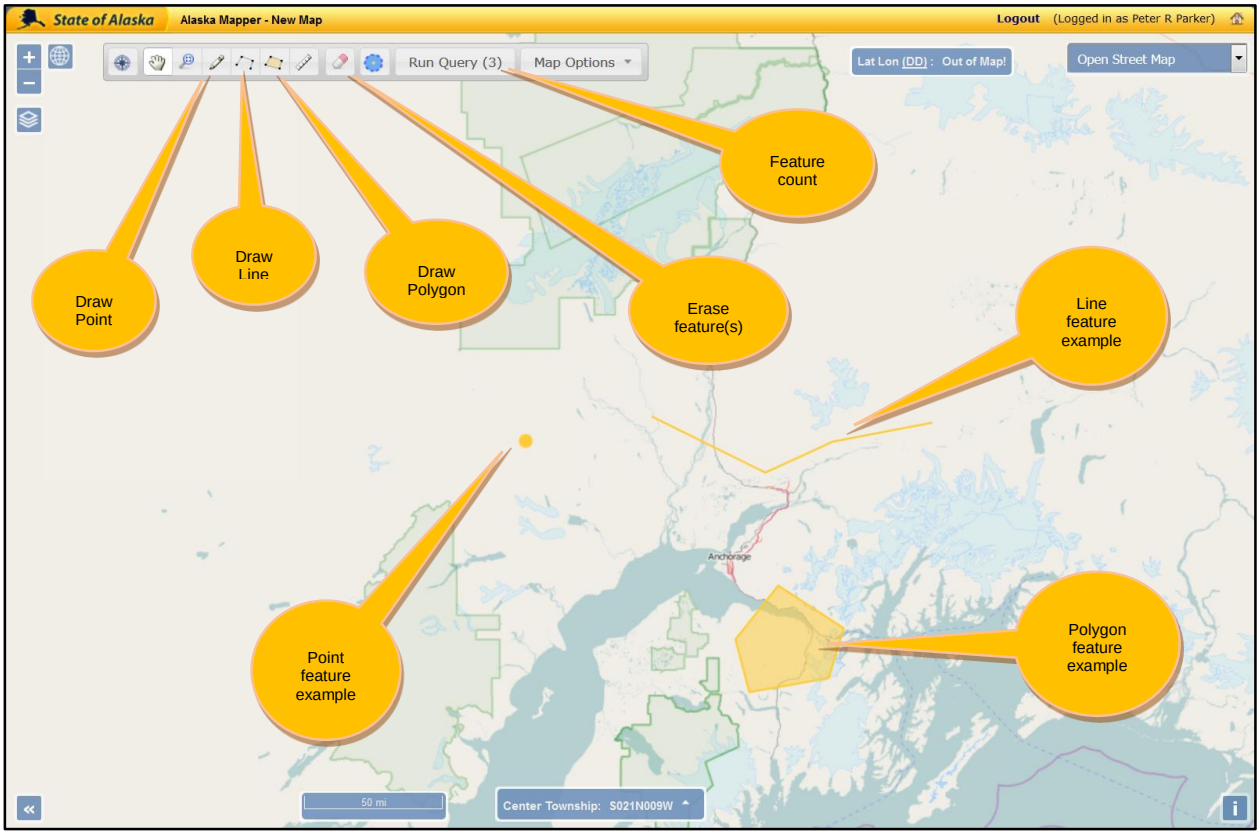


Figure 13 – Draw Tools

Draw Point Tool

The **Draw Point** tool is used to draw a single point on the map. Because of its specificity, this tool is most useful when you are seeking a single feature, and you know exactly where that feature resides.

After drawing a point, click **Run Query** to determine which layer features interact with the point. See "Running a Query" for more information.

Note: When using this tool, make sure you are zoomed in sufficiently. If you are zoomed out too far, your point may be off the mark.

Draw Line Tool

The **Draw Line** tool allows you to draw a line on the map. To begin drawing a line, click once on the map, and then move the pointer to draw. To create a corner, click once and then continue drawing. Double-click to complete the line. A line must consist of two or more points.

After drawing a line, click **Run Query** to determine which layer features interact with the line. See "Running a Query" for more information.

Draw Polygon Tool

The **Draw Polygon** tool allows you to draw a multi-sided shape on the map. To begin drawing, click once on the map, and then move the pointer to draw. To create a perimeter point, click once again and then continue drawing. As you create perimeter points, the polygon

forms like a rubber band snapping around the points. Double-click to complete the polygon. A polygon must consist of three or more points.

After drawing a polygon, click **Run Query** to determine which layer features interact with the polygon. See "Running a Query" for more information.

Note: Using the **Draw Polygon** tool from a zoomed out view may result in too many returned features in the query results. To avoid this, zoom in closer on the map view.

Erase Feature Tool

The **Erase Feature** tool allows you to remove points, lines and polygons that you have drawn on the map. After selecting the **Erase Feature** tool, you can erase a feature simply by clicking it. To erase all the features at once, **double-click** the tool.

Note: There is no **Undo** function for the **Erase Feature** tool. Once you erase a feature, it is lost permanently.

Measure Length or Area Tool

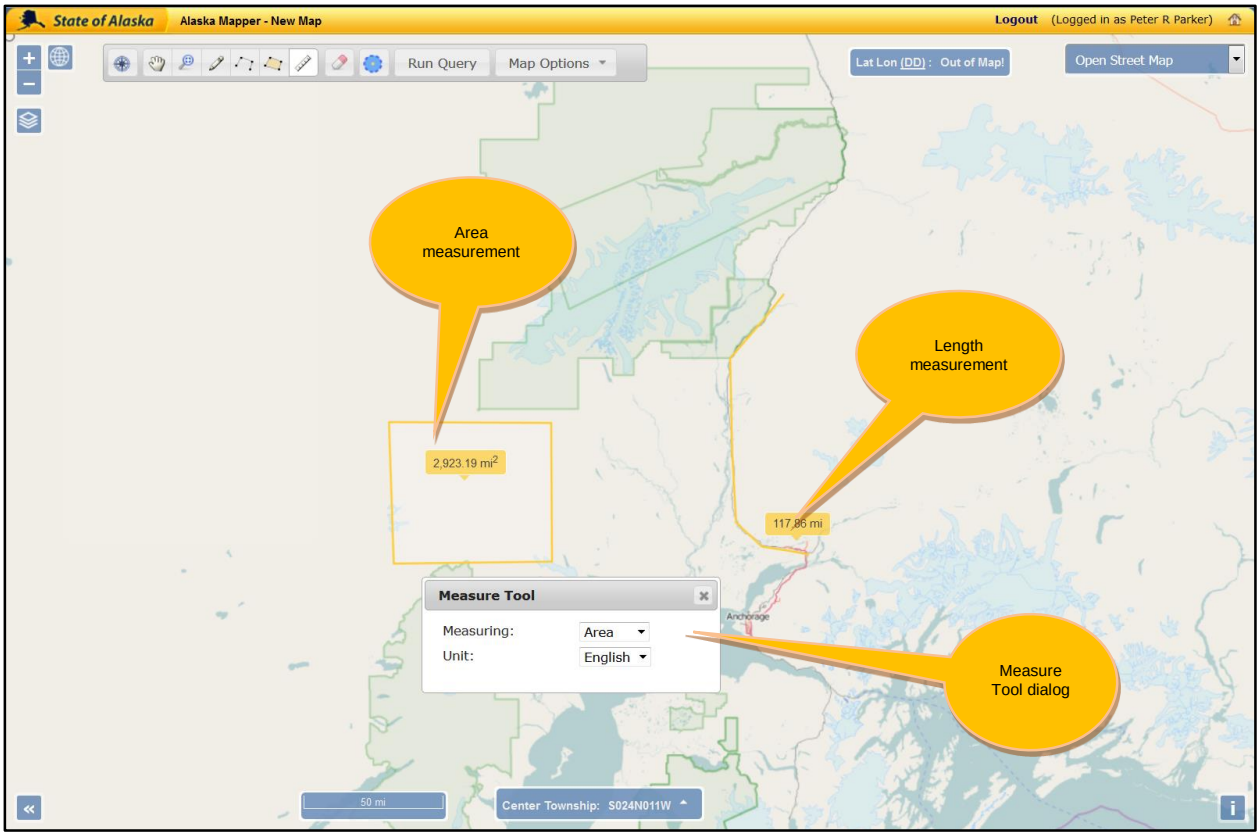


Figure 14 – Measure Length or Area Tool

The **Measure Length** or **Area** tool allows you to measure the length of a line segment or the area within a polygon drawn on the map. When you select this tool, the Measure Tools dialog displays, allowing you to select **Measure Length** or **Area**. When using this tool, lines and polygons are drawn in much the same way as they are with the **Draw Line** and **Draw Polygon** tools.

If you select **Measure Length**, you can then draw a line on the map, and the total length of the line will display at the last point drawn. The length value will be displayed in the unit selected in the Unit selector.

If you select **Measure Area**, you can draw a polygon on the map, and the total area of the polygon will display within the polygon. The area value will be displayed in the unit selected in the Unit selector.

To dismiss the tool altogether, you must close the Measure Tool dialog by clicking the close button. You can also dismiss the tool by clicking one of the other draw feature tools.

Feature Modification

Any of the three draw feature tools will allow you to modify existing features on the map whether they were drawn by hand, buffered or navigated to. Feature modifications are limited to moving and adding vertices.

Once a feature in present (gold in color) you can hover over the edge of border and a second blue point appears snapped to the boarder itself  . To add a vertex, click and drag the boarder. If a vertex did not exist in that area, one will be created. If one existed, it will be moved to where you ended the drag operation.

Tip: To see how your feature modification has affected a previously run query, rerun the query by clicking **Run Query**.

Buffer Tool

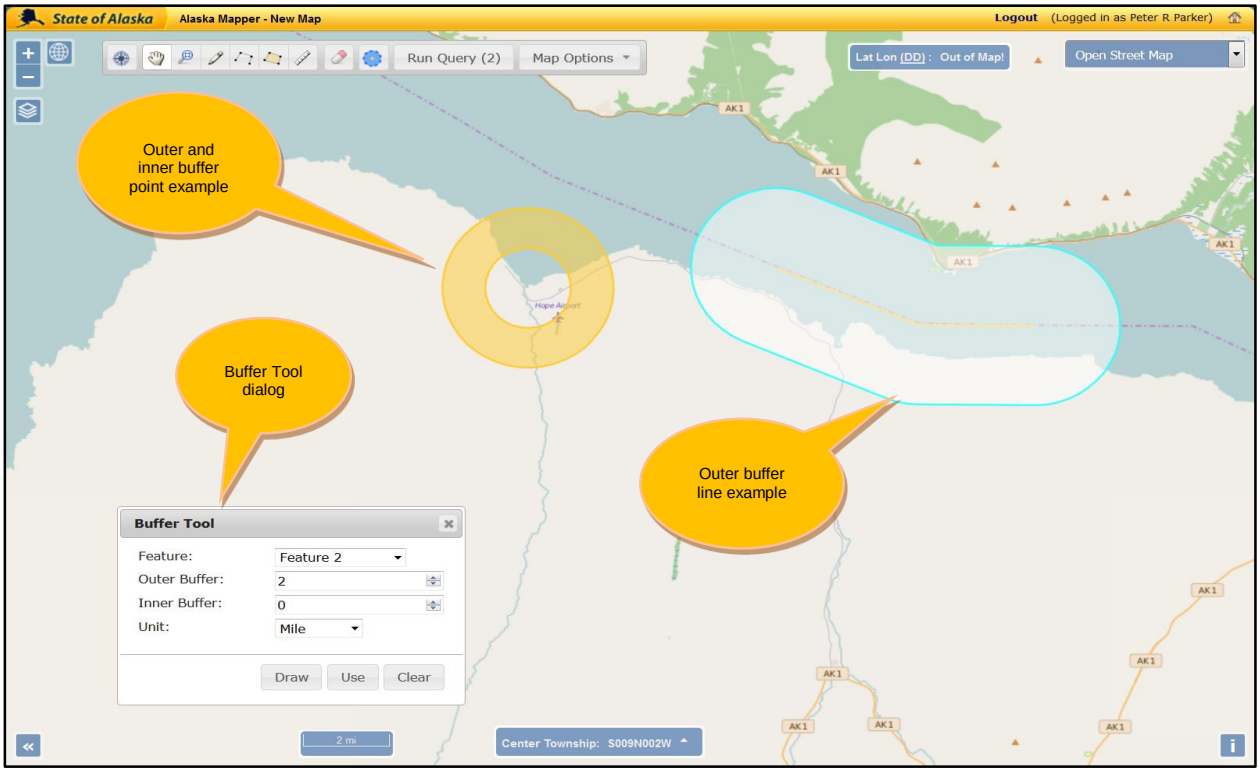


Figure 15 – Buffer Tool

The **Buffer** tool  allows you to extend the area of a point, line or polygon by creating a buffer area around the shape. The buffer is a polygon that can then be used in queries.

To create a buffer for use in a query:

1. Using the map tools, draw the feature around which you wish to create a buffer.
2. Click the **Buffer** tool button. The Buffer Feature window displays.
3. Enter a number in the **Outer Buffer** field.

   Tip: If necessary, you can select a different unit of measurement from the **Distance Units** dropdown.
4. If necessary, enter a value in the **Inner Buffer** field. Doing so will create an empty area in the center of the buffer.
5. Click **View** to preview the buffer on the map. The buffer appears with a blue-green dotted border and fill. Queries cannot be run on this preview.
6. If the drawn buffer is sufficient, click **Use**. A new polygon is created from the buffer area. (If you would like to redraw the buffer, repeat steps 3 – 5.) **Tip:** To remove a buffer, click **Clear**.

   You can now use the polygon in a query. See "Running a Query" for more details.

To remove any unwanted features, either click the Erase Feature Tool and click individually on the features or double-click the Erase Feature Tool to remove all the existing features.

Alaska Mapper's query function allows you to determine if any features found in the active map layers interact with a feature that you have drawn on the map.

Note: When you query map data, only the active layers are included in the query results. You can make layers active and inactive on the **Layers** tab.

Running a Query

To query map data

There must be at least one area/point of interest (a feature) on the map in order to perform a query. There must also be at least one active layer.

1. Draw a feature on the map using one of the following methods:
    - Use the **Draw Point**, **Draw Line** or **Draw Polygon** tool to manually draw the feature. See "Query by Feature Tools" for details.
    - Use the **Map Navigation** tool to navigate to an area of interest and create a polygon feature around it. See "Map Navigation Tool" for details.
    - Use the **Buffer** tool to create a buffer area around an existing feature and generate a polygon from it. See "Buffer Tool" for details.
2. Click **Run Query**. Results are displayed in the Query Results window. See "Query Results" for details about query results.

The Alaska Mapper will search all active layers in the map and will return data where there are any interactions with the feature(s) drawn. Depending on the number of active layers, the complexity of the data, or the complexity of the querying feature(s), or the number of returned results could all impact the amount of time it takes to complete a query. Care should be taken when making a query.

If more than one feature is present on the map, they will all be part of the query. Please be sure you have the features you need/expect on the map before running the query. The Feature Count found in the **Run Query** button tells you how many features are currently on the map.

Query Results

Figure 16 – Initial Query dialog

The Query Results dialog displays the results of the query in tabular format and allows you to sort the results, export them as a spreadsheet or PDF, print them and view additional information about the report analysis.

To view the results in a separate browser window, click on the maximize button . This will open up the results in a new browser window and close the dialog. Having the results in a separate window is very handy for being able to navigated to the individual result locations among other things.

To return to the dialog mode, close the results window and rerun the query.

Layer Selector

Initially after a query is run, the results are grouped by layer. To view the results for a particular layer, select the layer from the **Layer Selector** dropdown.

Exporting Results

The Alaska Mapper allows you to export the query results in two spatial formats and in three tabular formats.

If any of the export buttons are clicked on the initial Query Results, all the results from all the layers represented are exported. If any of the export buttons are clicked when the results of a specific layer are selected, only the results of that layer are exported.

Depending on the number of layers, the complexity of the data being queried and the number of returned features can directly effect the time it takes to prepare the export files. Please give ample time for requests to complete before contacting support.

Spatial Data Export

Query results can be exported in either ESRI Shapefile or Google KML format. Each active layer will be represented in the export file if there is at least one result returned and all the tabular data will be included with the features.

When the **Export Spatial Data** button is clicked, the Data Extract Options dialog will appear and you will be prompted to enter your email address as well as select which format and Coordinate Reference System you wish the returned data to be in. After the extraction is complete, an email will be sent to your address containing a link to data (contained within a Zip Archive). The email will also have a summary of the results attached including errors if any were encountered.

Tabular Data Export

Query results can be exported in three tabular formats: spreadsheet, PDF and HTML.

Spreadsheet – This option returns the results (excluding location information) in a format compatible with Microsoft Excel. This spreadsheet can be edited as you see fit. Each layer included in the query will have its own tab/sheet within the workbook. The system will return an error if the number of results exceeds the threshold (5,000 records).

PDF – This option returns the results (excluding location information) in the Portable Document Format (Adobe Acrobat). If you have the appropriate Adobe software, this document can be edited as you see fit. The system will return an error if the number of results exceeds the threshold (5,000 records).

HTML – This option will return the results (excluding the location information) in a Hypertext Markup Language document which is viewable in your browser. The system will return an error if the number of results exceeds the threshold (5,000 records).

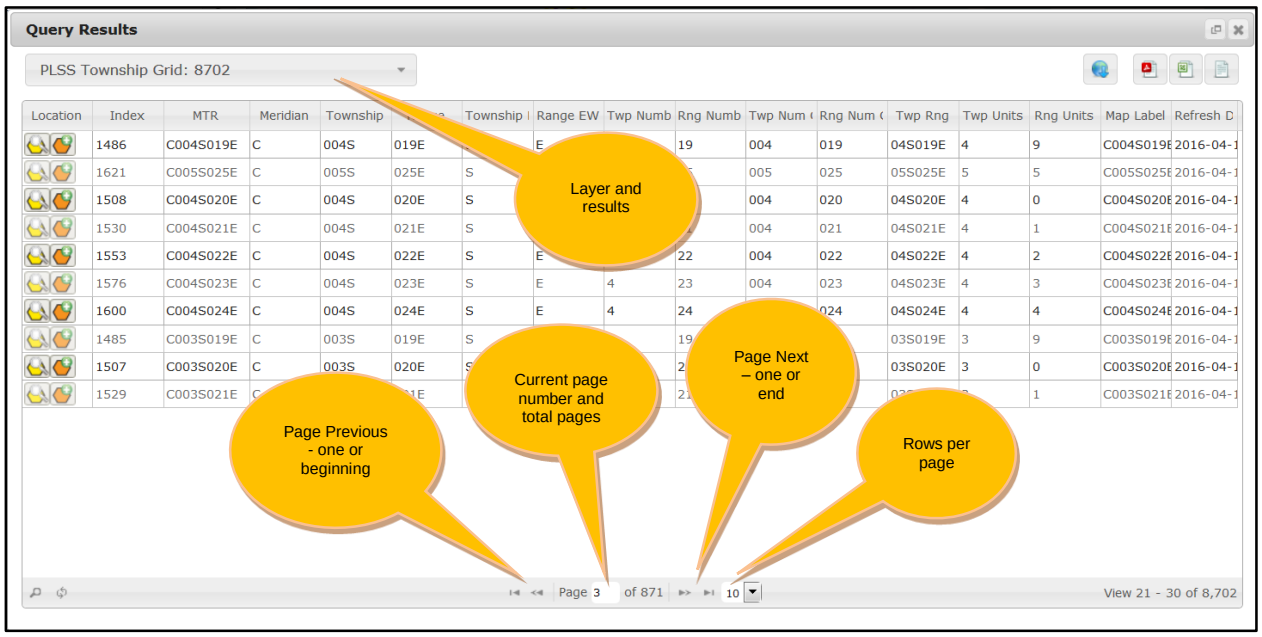


Figure 17 – Query Results

Paging Options

Rows Per Page

The **Rows Per Page** selector allows you to limit the number of rows that display on each page of the report. To change this number, click the **Rows Per Page** dropdown and select a value.

Moving from Page to Page

If there is more than one page of results, you can step back and forth through the pages using the **Previous** and **Next** buttons. You can also navigate directly to a specific page by entering the page number in the **Page** field and pressing the **Enter** key while in the field.

Sorting the Report

To sort the results by a particular column, click that column's header. For example, in Figure 18 we have sorted the results by customer name by clicking the **Customer Last Name** column header. The results are sorted in ascending order as indicated by a triangle next to the column header. Clicking the column header a second time would result in a descending sort order, which would be indicated by an inverted triangle. Clicking the header a third time would remove the sorting (no triangle).

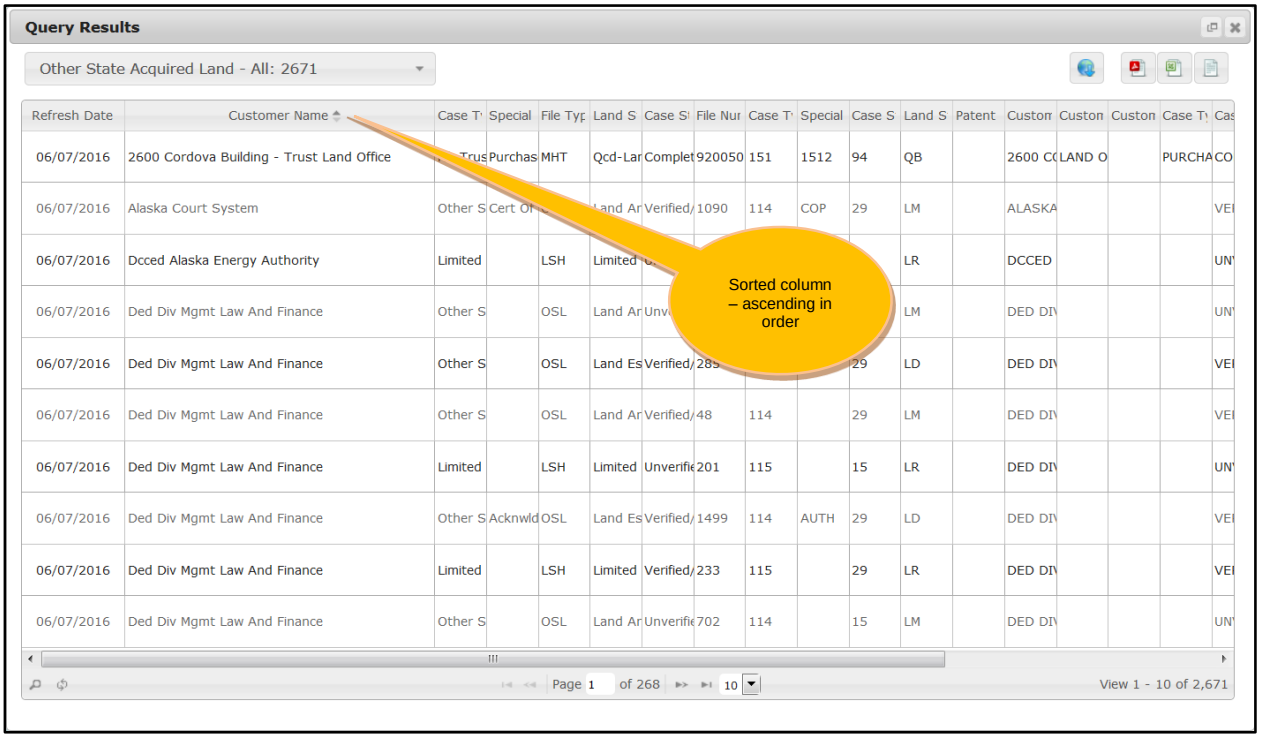


Figure 18 – Query Sorting

Hyperlinks in the Query Results

Some columns may present their data as hyperlinks. These hyperlinks when clicked on will take you to further information about the value of that cell. A new tab/window is opened to present that information.

Viewing Features from Query Results

The **Location** column in the Query Results contains a **View Location** and **Use Location** button. Click the **View Location** button to zoom in and highlight (bright yellow) the selected feature as show in Figure .

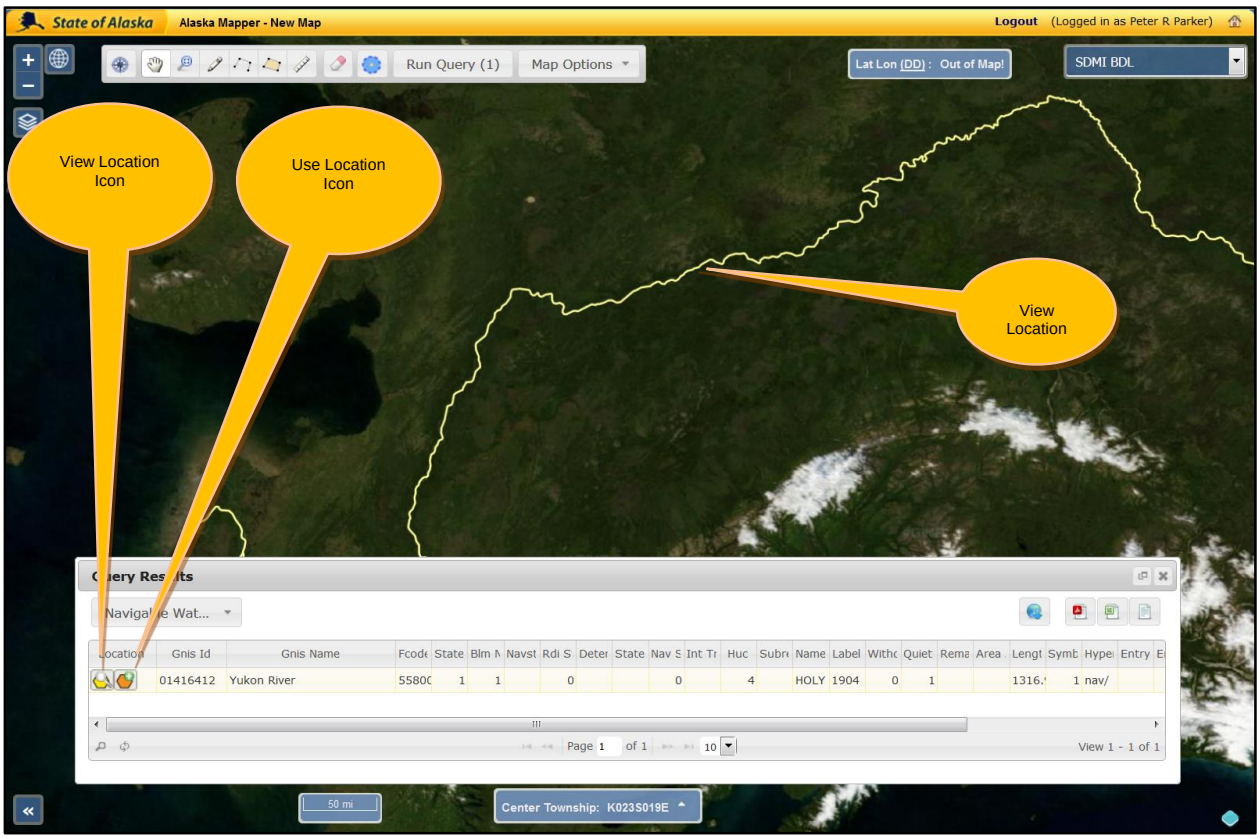


Figure 19 – Viewing a Feature from the Query Results

To use a result location in a query, click the **Use Location** button. After clicking the button, you will notice the map will display the feature in a gold color and the **Feature Count** in the **Run Query** button will increase by one.

Viewing Township Information in Other Systems

At the bottom of the window, Alaska Mapper displays the township that is currently at the **center** of the map view. You can open this menu for access to information about that township in other DNR systems. Be sure to first center your map in the township you wish to gain more information about.

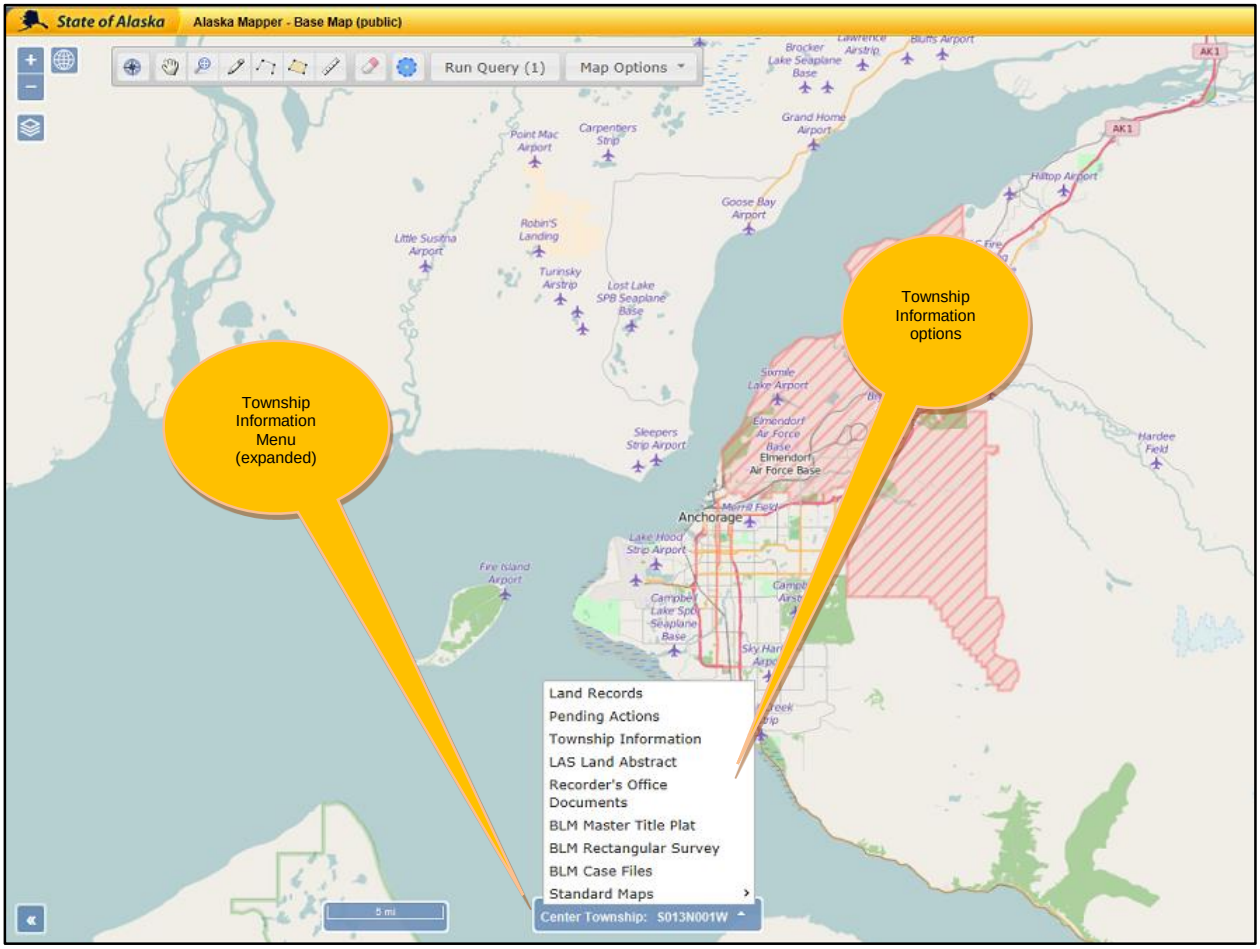


Figure 20 – Township Information Options

Following are explanations of the options found in the Township Information menu:

Option	Description
Land Records	Opens the Alaska Land Records website, providing you access to a variety of information about the township, including state status plats, Web LAS reports, state surveys, federal land records and more
Pending Actions	Opens the Spatial Case Information Management System (SCIMS) and displays all pending land status update actions for the township
Township Information	Returns details about the township in a PDF document.

LAS Land Abstract	Opens Web LAS and displays the township's land abstract. Web LAS is the system of record for all DNR land records. Help manuals and training guides for Web LAS are available on the DNR's Web site at http://dnr.alaska.gov/projects/las/lasmenu.cfm.
Recorder's Office Documents	Displays the existing Recorder's Office documents for the township.
Bureau of Land Management (BLM) Master Title Plat	Fetches the Bureau of Land Management Master Title Plat for the township in a PDF document.
Bureau of Land Management (BLM) Rectangular Survey	Fetches the Bureau of Land Management Rectangular Survey for the township in a PDF document.
Bureau of Land Management (BLM) Case Files	Displays the Bureau of Land Management Alaska Case Retrieval Enterprise System (ACRES) and the case files for the township.
Standard Maps	This option along with its sub-options provide access to print quality map products. The sub-options mimic the maps in Alaska Mapper under the Standard Land Status Maps folder in terms of content and are laid out in professional cartographic fashion with surrounds, legend, overview map and notes. The map generated is returned in a PDF document and ready for printing. Please note that this process may take several minutes to complete.

Importing Spatial Data

Alaska Mapper allows you to upload features from three types of spatial data formatted files. The three formats are:

- .shp – ESRI Shapefile
- .kml – Google Keyhole Markup Language
- .gpx - GPS Exchange Format

To upload a file:

1. Click on the **Map Options** menu in the Tool Bar and select the **Import Features** option.
2. Click the **Browse** button and select the file you wish to import.
3. Select the Reference System of the data contained within the file. KML and GPX files are assumed WGS 84. Shapefiles not in one of the options need to be created using one of the options listed prior to being imported.
4. Click the **Import** button. The file is uploaded, and the contents are displayed (gold in color) as features on the map and the map is zoomed to the area that displays the extent of the imported features.

Once feature(s) are successfully imported, they can be used in conjunction with a Query.

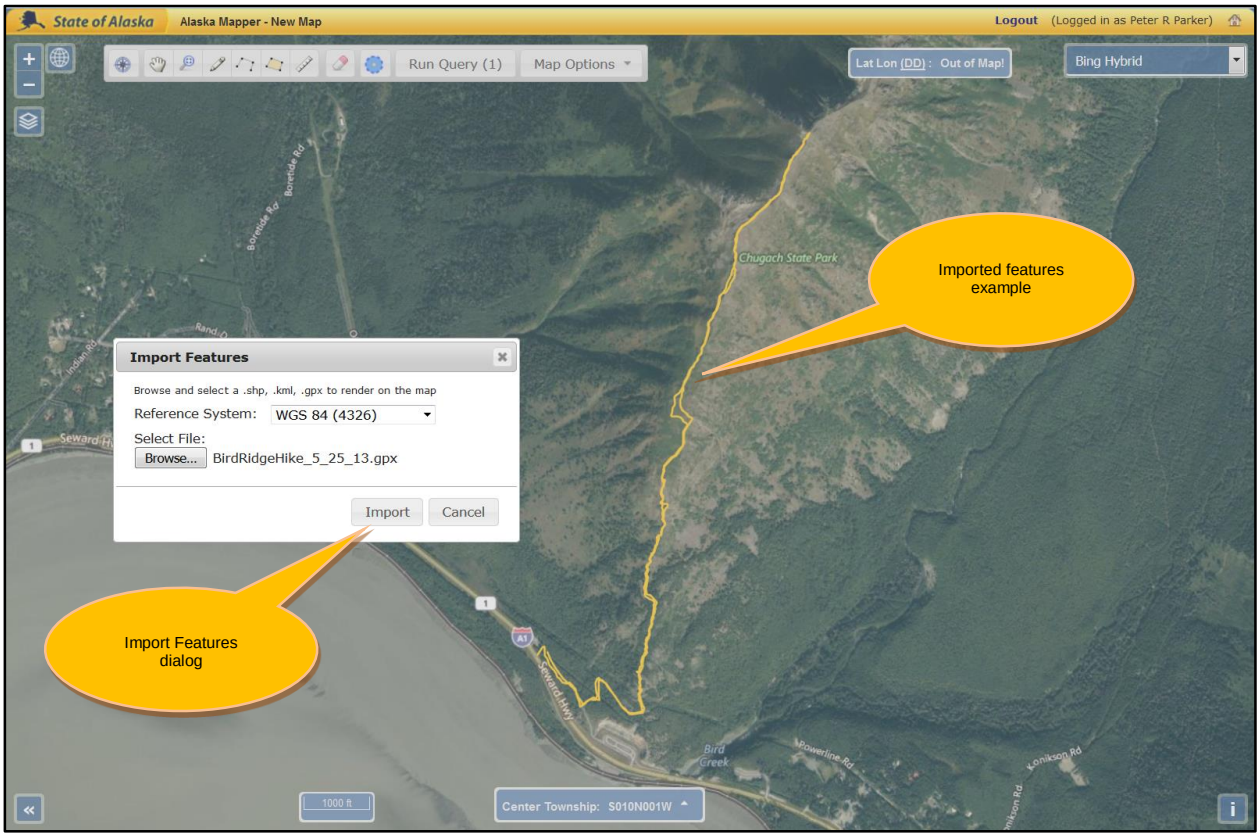


Figure 21 – Importing Spatial Data

Note: Shapefiles must contain fewer than 50 features and fewer than 1,500 vertices.

Printing

To print the current map display in a cartographic way without the widgets on the screen,

1. Select the **Print Map** option under the **Map Options** menu in the **Tool Bar**.
2. A new browser tab/window will be open with the map image positioned within a surround and a legend.
3. From the browser's menu, select File + Print and provide required information.
4. You can also save your map as an Image or a PDF, by clicking on the 'Save as Image' or 'Save as PDF' options located in the upper left hand corner of the screen.
5. Close the tab/window when finished to return to the Alaska Mapper.

Appendix

Tips on Navigating by Latitude and Longitude

Following are some tips and hints on using the **Map Navigation** tool's latitude and longitude navigation options:

- To enter values in decimal degrees, select Latitude/Longitude (Decimal) from the dropdown menu in the Go to Area of Interest window. To enter values in degrees, minutes and seconds (DMS), select Latitude/Longitude (DMS).
- Alaska Mapper interprets all latitude and longitude values as being in the NAD83 format. See "About Alaska Mapper's Geographic Data and Satellite Imagery" on page 6 for more information.
- When entering values in decimal degrees, one-tenth of one degree of latitude is approximately 36,400 feet (6.9 miles). When using DMS, one degree equals 364,000 feet (69 miles), one minute equals 6,068 feet (1.15 miles), and one second equals 101 feet.
- The distance between degrees of longitude varies as one nears the North Pole due to the convergence of the meridians. The following table provides approximations of this distance for different locations in the state:

Location	One Degree Latitude	One Minute Latitude	One Second Latitude	0.10 Degree
Juneau	36.29 miles	3,194 feet	53 feet	19,160 feet (3.6 miles)
Anchorage	33.30 miles	2,930 feet	49 feet	17,580 feet (3.3 miles)
Fairbanks	29.41 miles	2,588 feet	43 feet	15,530 feet (2.9 miles)
Barrow	22.18 miles	1,952 feet	33 feet	11,710 feet (2.2 miles)

- You must use a negative value for west longitude and south latitude values.

Using Text Searches to Locate Areas of Interest

Some navigation functions that you see in the Map Navigation window, such as **Alaska Place Name**, allow you to search for features by entering text. Here are a few useful tips for doing text searches:

- As you type, a list of matching database entries will appear below the text box. When you see the location you are seeking, select it by clicking it, and then click the **Use** button to navigate to the location.
- You do not need to place quotes around names made up of multiple words (for example, Yukon River).
- Text searches are case-insensitive.